

1. Solve the equation for x and choose the interval that contains x (if it exists).

$$22 = \ln \sqrt[5]{\frac{9}{e^{9x}}}$$

- A. $x \in [-2, -1]$
 - B. $x \in [-13.7, -10.5]$
 - C. $x \in [-5.5, -3.7]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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2. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x - 3) + 7$$

- A. $(-\infty, a), a \in [-8, -4]$
 - B. $(-\infty, a), a \in [5, 9]$
 - C. $[a, \infty), a \in [0, 4]$
 - D. $[a, \infty), a \in [-4, -2]$
 - E. $(-\infty, \infty)$
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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-8} + 2$$

- A. $[a, \infty), a \in [-4.1, 0.9]$
 - B. $(-\infty, a], a \in [0.9, 4.1]$
 - C. $(a, \infty), a \in [-4.1, 0.9]$
 - D. $(-\infty, a), a \in [0.9, 4.1]$
 - E. $(-\infty, \infty)$
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4. Solve the equation for x and choose the interval that contains x (if it exists).

$$11 = \ln \sqrt[6]{\frac{7}{e^{6x}}}$$

- A. $x \in [-4.5, -2.9]$
 - B. $x \in [-3.1, -1.5]$
 - C. $x \in [-12.6, -10.4]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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5. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(4x + 5) + 5 = 2$$

- A. $x \in [16.2, 20.3]$
 - B. $x \in [21.1, 23.6]$
 - C. $x \in [2.4, 3.2]$
 - D. $x \in [-2.6, -0.1]$
 - E. There is no Real solution to the equation.
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6. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$3^{3x-3} = 16^{2x+3}$$

- A. $x \in [11.61, 12.61]$
 - B. $x \in [-3.67, -0.67]$
 - C. $x \in [-8.16, -3.16]$
 - D. $x \in [5, 10]$
 - E. There is no Real solution to the equation.
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7. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 7) + 1$$

- A. $(a, \infty), a \in [-8.9, -5]$
 - B. $(-\infty, a), a \in [5.9, 9.7]$
 - C. $(-\infty, a], a \in [-2.2, -0.9]$
 - D. $[a, \infty), a \in [0.3, 2.2]$
 - E. $(-\infty, \infty)$
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8. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-6} + 2$$

- A. $[a, \infty), a \in [-6, -1]$
 - B. $(-\infty, a), a \in [0, 3]$
 - C. $(-\infty, a], a \in [0, 3]$
 - D. $(a, \infty), a \in [-6, -1]$
 - E. $(-\infty, \infty)$
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9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$3^{-3x+2} = \left(\frac{1}{343}\right)^{2x-5}$$

- A. $x \in [-1.8, -0.4]$
 - B. $x \in [3, 5.2]$
 - C. $x \in [0.9, 2.1]$
 - D. $x \in [-6.4, -4.7]$
 - E. There is no Real solution to the equation.
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10. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(2x + 7) + 4 = 2$$

- A. $x \in [-6.47, -2.47]$
 - B. $x \in [2.5, 5.5]$
 - C. $x \in [2.5, 5.5]$
 - D. $x \in [11.5, 12.5]$
 - E. There is no Real solution to the equation.
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